



Hazardous Substances  
Technical Liaisons

## **OFFICE OF RESEARCH AND DEVELOPMENT HAZARDOUS SUBSTANCES TECHNICAL LIAISON REGION 9 NEWSLETTER Spring 2005, Edition 31**

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Welcome to spring! Baseball is back (Go Red Sox!) and also the time of year when remediation construction projects can finally get underway again as the winter cold becomes a memory. Out here in the San Francisco Bay Area, the traditionally cooler months are usually a bit more agreeable and this allowed ORD to assist Region 9 with a vegetable upake experiment over the fall and winter. Duane Newell from the Las Vegas Lab provided helpful support for this project at the former Alameda Naval Air Station, now called Alameda Point. More info is included below.

As an EPA RPM in Superfund or a RCRA project manager, you too can take advantage of Remedial Investigation support (like at Alameda Point) that is available through ORD. This is just one of a number of types of technical support that I can assist you with; please don't hesitate to ask. In most cases, the funding is already there and waiting for requests. Call me for more details.

This newsletter also includes two other Region 9 stories about perchlorate remedies, showcasing work done at the Aerojet facility in Rancho Cordova, CA and the Lawrence Livermore National Lab. Nationally, you can read about recent developments in analytical methods and a request for solicitations for the new Environmental Technology Verification (ETV) program's element that considers sustainability. Please read more below. The remainder of this issue provides you with the latest in waste management documents and upcoming conferences and training. I hope you find it useful!

Mike Gill  
EPA Region 9  
ORD Hazardous Substances Technical Liaison  
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Spring 2005 Edition of the Region 9 HSTL Newsletter:

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## NATIONAL NEWS

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### Recent Developments in Analytical Methods for Emerging Contaminants

(From Technology News and Trends, January 2005)

Development trends in analytical methods for emerging contaminants were reviewed last year by the U.S. EPA's National Exposure Research Laboratory (NERL). In addition to methods for more widely recognized contaminants such as perchlorate and methyl *tert*-butyl ether (MTBE), tools were examined for new high-priority compounds, such as perfluorooctanoic acid (PFOA), polybrominated diphenyl ethers (PBDEs), pharmaceuticals, and endocrine disrupting compounds (EDCs).

Mass spectrometry (MS) plays an increasing role in contaminant identification and measurement and has been enhanced through lower detection limits, improved analytical instrumentation, and new derivization procedures. The use of low-pressure gas chromatography (GC) with GC/MS, for example, proved to be a simple but important improvement to traditional GC/MS analysis that allows for much shorter analysis times. Other analytical techniques that are used increasingly are:

- time-of-flight, quadrupole-ion trap, and Fourier transform MS;
- chiral separations, usually with chiral GC or liquid chromatography (LC) columns or with capillary electrophoresis;
- on-line coupling of extraction with separation/detection such as solid-phase extraction (SPE) or solid-phase microextraction (SPME) coupled with LC/MS;
- LC/MS/MS and GC/MS/MS;
- coupling of LC and ion chromatography (IC) with inductively coupled plasma (ICP)-MS for inorganics;
- and matrix-assisted laser desorption ionization (MALDI)-MS and electrospray ionization (ESI)-MS for microorganism/pathogen identification.

For the complete article, please go to: <http://www.clu-in.org/products/newsletters/tandt/view.cfm?issue=0105.cfm#1>

*Contributed by Susan D. Richardson, Ph.D., EPA/NERL (706-355-8304 or [richardson.susan@epa.gov](mailto:richardson.susan@epa.gov))*

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### **Request for Proposals for ETV / ESTE**

(From Sally Guitierrez, Acting Director National Risk Management Research Laboratory)

I am pleased to announce the request for proposals (RFP) for the Environmental and Sustainable Technologies Evaluation (ESTE) program element, a new part of the highly successful Environmental Technology Verification Program (ETV), <http://www.epa.gov/etv>. ESTE introduces a new way of operating for ETV. Funded with approximately \$1M, ESTE expands our ability to respond immediately and directly to high priority Agency environmental problems for which innovative commercial-ready technologies may provide solutions. The ETV program will fund verification proposals, and ORD project managers will then conduct the verifications with contractor support, and in most cases collaborative cost sharing from technology developers/vendors and other partners.

Who should participate? ORD project managers and their quality assurance associates, working closely with program and/or regional office clients, who have a need for objective data on the performance of commercial-ready environmental technologies, should participate. Independent performance data for environmental monitoring, treatment, and prevention technologies supports the larger mission of EPA to research and develop strategies to characterize and manage environmental risk. Researchers will benefit by developing credible performance information for important new environmental technologies to inform their in-house research and wider research programs. They will also benefit from working with clients in EPA program and regional offices and other stakeholders in the environmental technology user and regulatory community.  
**(Proposals are due April 29. Please contact Mike Gill for RFP details.)**

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# LOCAL NEWS

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## Alameda Point Vegetable Uptake Sampling

(Thanks to Dr. Sophia Serda, Region 9 Toxicologist)



Fig.1. The view of the San Francisco skyline from Alameda Point.  
Wouldn't you want to live here?

ORD recently assisted Region 9 with a vegetable uptake test at the Alameda Point Site. The site is the former Alameda Naval Air Station and is located on San Francisco Bay. Historically, the property was used as a borax processing facility, an oil refinery, and for military fleet aviation activities. Part of the property was contaminated with polycyclic aromatic hydrocarbons (PAHs). The site will be transferred to the local community and will be redeveloped into residential, commercial, industrial and recreational areas.

The objective of this project was to determine the potential exposure threat to current and future residents from the consumption of fruits and vegetables grown within the area of concern at the site. The Las Vegas Lab's ERT section was requested to provide support to this effort. To accomplish this, an investigation was conducted that included a vegetation reconnaissance throughout the site. Fifteen targeted sampling locations and two reference areas were selected for the collection of soil and edible plant tissue samples to determine whether PAHs are transferred from soil to plant roots and then translocated from roots to edible plant parts. At each sampling location, fruits, vegetables or edible weed flowers were collected for PAH analysis. At the same time, a soil sample was collected from the root zone of the target plants to link the PAHs in the soil to the PAH accumulation in the plant tissues. The plant tissues sampled were fruits (apple, fig, and tomato), fava bean seeds, and flowers of Cat's-Ear.



Fig 2. Region 9 toxicologist Dr. Sophia Serda is in her element as she assists with vegetable sample collection.

The concentrations of benzo(a)pyrene-equivalent PAHs in the soil from these locations ranged from 16 to 462 ug/kg. The benzo(a)pyrene-equivalent concentrations for the reference areas were 21 ug/kg and 58 ug/kg. There were five locations on site where the soil collected from plant root zones contained comparatively higher benzo(a)pyrene-equivalent PAHs than the reference areas. The total benzo(a)pyrene-equivalent concentrations in the soil from these five locations ranged from 94 to 462 ug/kg, which were 3 to 14 times higher than the average concentration of the benzo(a)pyrene-equivalent PAHs from the reference areas.



Fig. 3. Some of the sampled vegetation analyzed for PAHs.

None of the 16 PAH congeners on the EPA Priority Pollutant List was detected in any of the plant samples collected from the site. Method detection limits ranged from 17 to 62 ug/kg. Even in the locations with the higher benzo(a)pyrene-equivalent PAHs in soil, edible plant tissues collected from these same locations did not show any detectable PAHs.

The results will be used in the human health risk assessment for the site. With assistance like this from ORD, an RPM can collect and utilize empirical data from the field for risk assessments during the RI, instead of depending on data derived from scientific literature that may not be applicable to the conditions at your site. These results will surely be "site specific", as we always say!



Fig. 4. Collected samples (tasty apple slices) are tagged for lab analysis by Lockheed Martin's Jianwei Huang.

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### Fluidized Bed Reactor and Ion Exchange Systems Added for Perchlorate Removal

(From Technology News and Trends, January 2005)

Groundwater beneath the GenCorp Aerojet facility in Rancho Cordova, CA, is actively treated by multiple-technology, ex-situ treatment systems, three of which are designed to remove commingled perchlorate and trichloroethene (TCE). Perchlorate removal is achieved through use of either a fluidized bed reactor (FBR) or an ion exchange unit. The first perchlorate-specific technology to be implemented was the FBR, which was added to an existing groundwater extraction and treatment system in 1998 shortly after perchlorate was discovered in the western portion of the site. In 2002, the ion exchange unit was added to a separate treatment system to address perchlorate in another TCE plume located in the northern portion of the site. Both perchlorate treatment components

consistently have achieved perchlorate concentrations below the 4 µg/L detection limit in post-treatment effluent.

Aerojet estimates that operation and maintenance costs for the combined treatment system average \$0.24/1,000 gallons. The FBR and ion exchange systems are anticipated to operate indefinitely. As an active member of the national Perchlorate Study Group, Aerojet continues to evaluate additional technologies that may accelerate groundwater cleanup. Preliminary data from current pilot tests on the use of in-situ bioremediation to remove perchlorate in soil and groundwater show promising results.

For the complete article, go to: <http://www.clu-in.org/products/newsletters/tnandt/view.cfm?issue=0105.cfm#2>

*Contributed by Chris Fennessy, GenCorp Aerojet (916-355-3341 or [christopher.fennessy@aerojet.com](mailto:christopher.fennessy@aerojet.com)), Alex MacDonald, California Regional Water Quality Control Board (916-464-4625 or [amacdonald@waterboards.ca.gov](mailto:amacdonald@waterboards.ca.gov)), Bill Guarini, Shaw Environmental (609-895-5384 or [william.guarini@shawgrp.com](mailto:william.guarini@shawgrp.com)), and Tim Peschman, USFilter (651-638-1325 or [peschmant@usfilter.com](mailto:peschmant@usfilter.com))*

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### Containerized Wetland Bioreactor Evaluated for Perchlorate and Nitrate Degradation

(From Technology News and Trends, January 2005)

The U.S. Department of Energy (DOE) and Lawrence Livermore National Laboratory (LLNL) in Livermore, CA designed and constructed an innovative containerized wetland (bioreactor) system that began operation in November 2000 to biologically degrade perchlorate and nitrate under relatively low-flow conditions at a remote location at Site 300 known as Building 854. Since initial start-up, the system has processed over 3,463,000 liters of ground water and removed over 38 grams of perchlorate and 148 kilograms of nitrate.

Design of the wetland bioreactors was based on earlier studies showing that indigenous chlorate-respiring bacteria could effectively degrade perchlorate into nontoxic concentrations of chlorate, chlorite, oxygen, and chloride. Studies also showed that the addition of organic carbon would enhance microbial denitrification. Early onsite testing showed acetic acid to be a more effective carbon source than dried leaf matter, dried algae, or milk replacement starter (a nutrient and carbon source used in a Department of Defense phytoremediation demonstration).

Results demonstrate that the wetland bioreactor system can successfully remove commingled perchlorate and nitrate from ground water in a relatively short time (hours versus days) when continuously provided with a carbon source. In addition, the bioreactor degrades nitrate and perchlorate to non-toxic byproducts, eliminating the need for costly waste disposal of ion-exchange resin. Above-ground containerized wetlands are easy to maintain and can be moved when cleanup is complete without impacting the natural habitat.

For the complete article, go to: <http://www.clu-in.org/products/newsletters/tnandt/view.cfm?issue=0105.cfm#4>

Contributed by Valerie Dibley and Paula Krauter, LLNL, (925-422-9777 or [dibley1@llnl.gov](mailto:dibley1@llnl.gov), and 925-422-0429 or [krauter2@llnl.gov](mailto:krauter2@llnl.gov))

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## DATEBOOK - UPCOMING EVENTS

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This section of the newsletter is an attempt to present both EPA and non-EPA sponsored environmental technology related courses and conferences. But being a quarterly publication, it is impossible for this newsletter to always be up-to-date. For the most pertinent information on upcoming EPA courses, see <http://www.trainex.org>. These events are listed chronologically.

Many of the entries in these newsletters are from TIO's "TechDirect" emails (thank you Jeff Heimerman!). TechDirect prefers to concentrate mainly on new documents and the internet live events. However, they do support an area on the CLU-IN webpage where announcement of conferences and courses can be regularly posted. Sponsors can input information on their events at <http://clu-in.org/courses>. Likewise, the page has an area for upcoming events that might be of interest. It allows users to search events by location, topic, time period, etc.

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### **ITRC Internet Based Training**

These are typically 1-2 hour online courses where the participant follows a webpage presentation, while listening on the phone. Check - <http://www.itrcweb.org> or <http://www.clu-in.org/studio/seminar.cfm> for times and registration.

*NOTE: All dates/times are subject to change – check <http://www.itrcweb.org> for the most up-to-date information.*

April 26<sup>th</sup> - *Permeable Reactive Barriers: Lessons Learned and New Directions*  
2:00 p.m. to 4:15 p.m. EASTERN Time

May 5<sup>th</sup> - *What is Remediation Process Optimization and How Can It Help Me Identify Opportunities for Enhanced and More Efficient Site Remediation*  
11:00 a.m. to 1:15 p.m. EASTERN Time

May 19<sup>th</sup> - *What's New with In Situ Chemical Oxidation?*  
11:00 a.m. to 1:15 p.m. EASTERN Time

May 24<sup>th</sup> - *Strategies for Monitoring the Performance of DNAPL Source Zone Remedies*

2:00 p.m. to 4:15 p.m. EASTERN Time

May 26<sup>th</sup> - *Design, Installation, and Monitoring Alternative Final Landfill Covers*

11:00 a.m. to 1:15 p.m. EASTERN Time

NOTE: All dates/times are subject to change – check <http://www.itrcweb.org> for the most up-to-date information.

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2005 Groundwater Summit

April 17-20, 2005

San Antonio, TX

<http://www.ngwa.org/e/conf/0504175095.shtml>

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Dredging Short Course

April 20-21

Seattle, WA

For more info, contact US EPA's Steve Ells at <ells.steve@epa.gov>

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International Phytotechnologies Conference

April 20-22, 2005

Atlanta Georgia

<http://www.cluin.org/phytoconf>

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2005 Annual Toxicology and Risk Assessment Conference (Theme: "Predictive Toxicology")

April 25 -28, 2005

Cincinnati-Dayton, OH

<http://cfpub.epa.gov/ncea/cfm/recorddisplay.cfm?deid=117724>

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Arizona Healthcare Pollution Prevention Workshop

April 28, 2005

Phoenix, AZ

Contact Wendi Shafir (Shafir.Wendi@epamail.epa.gov or 415.972.3422) for more information.

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Waste Expo 2005

May 2-5, 2005  
Las Vegas, NV  
<http://www.wasteexpo.com>

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National Corrective Action Conference  
May 3-4, 2005  
Denver, CO  
<http://www.nationalcaconf.com/>

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The EnviroExpo and Conference 2005  
May 3-4, 2005  
Boston, MA  
<http://events.zweigwhite.com/enviroexpo2005/>

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SEDIMENT 2005: Cleaning Up Contaminated Sediment Sites  
May 6, 2005  
Portland Oregon  
<http://www.elecenter.com/sediments05.html>

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2005 NSTI Nanotechnology Conference and Trade Show  
May 8-12, 2005  
Anaheim, CA  
<http://www.nsti.org/Nanotech2005/>

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The Water Quality Standards Academy Basic Course  
May 9-13, 2005  
Washington, DC  
<http://www.epa.gov/waterscience/standards/academy.html>

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Interstate Technology & Regulatory Council (ITRC) - Accelerated Bioremediation of  
Chlorinated Solvents  
May 10-11, 2005  
Portland, OR  
<http://www.itrcweb.org/crt.asp#9231>

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The 2005 International Oil Spill Conference  
May 15-19, 2005  
Miami, FL  
<http://www.iosc.org/>

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Annual World Water & Environmental Congress: "Impacts of Climate Change"  
May 15-19, 2005  
Anchorage, Alaska  
<http://www.asce.org/conferences/ewri2005>

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EPA Science Forum - Collaborative Science for Environmental Solutions  
May 16-18, 2005  
Washington, DC  
<http://www.epa.gov/ord/scienceforum>

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2005 IEEE International Symposium on Electronics & the Environment  
May 16-19, 2005  
New Orleans, LA  
<http://www.iseesummit.org>

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EPA Meeting: Collaborative Cleanups: Revitalizing America's Communities  
May 23-24, 2005  
Keystone, CO  
<http://ems-mx4.sradev.com/uri-ocp/index.cfm>

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EPA NARPM / TSP Conference  
May 23-27, 2005  
Phoenix, AZ  
<http://www.trainex.org/offeringslist.cfm?courseid=70>

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Subsurface Vapor Intrusion to Indoor Air: An Update from Groundwater Resources  
Association of California  
May 25, 2005  
San Jose, CA  
<http://www.grac.org/ia>

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Federal Remediation Technologies Roundtable Meeting  
May 25, 2005  
Arlington, VA  
<http://www.frtr.gov/meetings.htm>

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NGWA Conference on MtBE and Perchlorate: Assessment, Remediation, and Public Policy

May 26-27, 2005

San Francisco, CA

<http://www.ngwa.org/e/conf/0505265015.shtml>

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First International Nanotechnology Conference on Communication and Cooperation

June 1-3, 2005

San Francisco, CA

<http://www.inc1.net/>

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ModelCARE 2005 Conference

June 1-3, 2005

Utrecht, the Netherlands

<http://modelcare2005.nitg.tno.nl/>

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Associated Short Course: Model Sensitivity Analysis, Data Assessment, Calibration, and Uncertainty Evaluation

<http://www.geo.uu.nl/hydrogeology/modsens/modsens.htm>

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8th International Symposium on In-Situ and On-Site Bioremediation

June 6-9, 2005

Baltimore, Maryland

<http://www.battelle.org/environment/er/conferences/biosymp/default.stm>

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International conference ModelCARE2005: "Calibration and Reliability in Groundwater Modelling, From Uncertainty to Decision Making"

June 6-9, 2005

The Hague (Scheveningen), Netherlands

<http://typhoon.mines.edu/events/modcare.htm>

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Environmental Forensics: Focus on Emerging Contaminants

June 7-8, 2005

Virginia Beach, VA

<http://www.environmentalforensics.org/workshops.htm>

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7th National Tribal Conference on Environmental Management (NTCEM)

June 7 - 10, 2005

Traverse City, Michigan

For more information, please contact Andy Knott at <[aknott@gtbindians.com](mailto:aknott@gtbindians.com)>

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AWWA 124th Annual Conference and Exposition

June 12-16, 2005

San Francisco, CA

<http://www.awwa.org/ace2005/>

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The Air and Waste Management Association (AWMA) 98th  
Annual Conference and Exhibition

June 21-24, 2005

Minneapolis, MN

<http://www.awma.org/ACE2005/>

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Environmental Technology Verification (ETV) International Forum

July 13-14, 2005

Washington, DC

<http://www.etvinternationalforum.com>

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Watershed Management Conference

"Managing Watersheds for Human and Natural Impacts: Engineering, Ecological, and  
Economic Challenges."

July 19-22, 2005

Williamsburg, VA

<http://www.asce.org/conferences/watershedmanagement2005/>

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NATIONAL ENVIRONMENTAL MONITORING CONFERENCE

July 25-27, 2005

Washington, DC

<http://www.nemc.us/>

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Eighth International Conference on Mercury as a Global Pollutant

Madison, Wisconsin

August 6-11, 2006

<http://www.mercury2006.org>

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ITRC Training on MTBE Remediation

San Francisco, CA

August 10-11, 2005 (tentative)

<http://www.itrcweb.org>

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Dioxin 2005 Conference  
August 21-26, 2005  
Toronto, Canada  
<http://www.dioxin2005.org/>

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2nd DOD Sustainable Ranges Initiative  
August 22-25, 2005  
San Antonio, TX  
<http://www.rangecon.org>

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American Chemical Society National Meeting (Division of Environmental Chemistry)  
August 28 -September 1, 2005  
Washington, DC  
<http://www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=meetings\future.html>

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10th Annual Int'l Symposium on the Interactions between Sediment and Water and the  
Int'l Association for Sediment Water Science  
August 28-September 2, 2005  
Lake Bled, Slovenia  
<http://www.wsc.monash.edu.au/iasws/2005symposium.htm>

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Southeast Asian Environmental Forensics Conference Announcement  
National Chengchi University  
September 19-21, 2005  
<http://www.environmentalforensics.org/workshops.htm>

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Environmental Forensics: Focus on Perchlorate  
September 21-22, 2005  
Santa Fe, NM  
<http://www.environmentalforensics.org/workshops.htm>

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The Water Quality Standards Academy Basic Course  
September 26-30, 2005  
Washington, DC  
<http://www.epa.gov/waterscience/standards/academy.html>

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Western Regional Pollution Prevention Network (WRPPN) Annual Conference  
September, 28-30, 2005  
Granlibakken, Tahoe City, CA  
<http://www.wrppn.org/>

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ConSoil 2005  
October 3-7, 2005  
Bordeaux, France  
<http://www.consoil.de>

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ENVIRONMENTAL EXPOSURE & HEALTH 2005  
October 5-7, 2005  
Atlanta, Georgia  
<http://www.wessex.ac.uk/conferences/2005/eeh05/index.html>

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US-MEXICO BORDER ENERGY FORUM XII  
October 13-14, 2005  
Santa Fe, New Mexico  
<http://www.glo.state.tx.us/energy/border/forum/>

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21st Annual International Conference on Soils, Sediments and Water  
Amherst, MA  
October 17-20, 2005  
<http://www.umasssoils.com/>

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Remediation Technologies Symposium 2005  
October 19-21, 2005  
Banff, Alberta, Canada  
<http://www.remtech2005.com>

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2005 Brownfields Conference  
November 2-4, 2005  
Denver, CO  
<http://www.brownfields2005.org/en/index.aspx>

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International Congress of Nanotechnology (ICNT)  
Nov 1-3, 2005  
San Francisco, CA  
<http://www.ianano.org/>

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2005 Superfund Basic Research Program (SBRP) Annual Meeting  
November 9-10, 2005

New York City

<http://www-apps.niehs.nih.gov/sbrp/index.cfm> (not posted at newsletter publication time)

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SETAC North America 26th Annual Meeting

Baltimore, MD

November 13-17, 2005

<http://www.setac.org/baltimore/baltimore.html>

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Fifth International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds

May 22-25, 2006

Monterey, CA

<http://www.battelle.org/environment/er/conferences/chlorcon/default.stm>

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## WEB PAGES

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### [CERCLIS Database Now Online](#)

(From an OSWER memo)

CERCLIS is the Comprehensive Environmental Response, Compensation, and Liability Information System. CERCLIS contains information on hazardous waste sites, potential hazardous waste sites, and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL. CERCLIS offers a variety of search criteria, such as site name, state, ZIP code, contaminants, HRS score and remedial activities. You can also retrieve additional site-specific documents and records such as Records of Decision, Five-Year Reviews and fact sheets for many sites. The website is: <http://www.epa.gov/superfund/sites/cursites/index.htm>

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### [Western Region Hazardous Substance Research Center](#)

(Thanks to Maria Wright of Oregon State University)

The [Western Region Hazardous Substance Research Center](#) (WRHSRC) is a partnership between Oregon State University and Stanford University and is one of five university-

based hazardous substance research centers in the United States. The Center's research focus is on the development of in situ treatment methods for groundwater contaminated with volatile organic compounds (VOCs). Here are two recent articles released that reflect some of the research going on at the WRHSRC.

#### **New Research Brief on Chemical Delivery and Aquifer Mixing Available (January 2005)**

This short web article describes Center research on technologies that promote aquifer mixing. Research Brief #6 ([http://www.wrsrc.orst.edu/briefs/brief\\_6.htm](http://www.wrsrc.orst.edu/briefs/brief_6.htm)) describes studies by Peter Kitanidis and his research team at Stanford University to develop computer models that help practitioners visualize aquifer conditions and design treatment systems that enhance aquifer mixing. The article contains links to downloadable modeling tools.

#### **New Research Brief on Soil and Mineral Nanopores (March 2005)**

This short web article describes research by the WRHSRC on the role of soil and mineral nanopores in contaminant fate and transport. The research brief is available at [http://wrsrc.oregonstate.edu/briefs/brief\\_7.htm](http://wrsrc.oregonstate.edu/briefs/brief_7.htm). It describes studies by Martin Reinhard and his research team at Stanford University.

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#### **Consolidated CLU-IN Project Profile Search**

To encourage and facilitate a sharing of experiences and knowledge across programs, CLU-IN offers information on thousands of projects where innovative approaches have been used to deal with contamination problems. CLU-IN now allows you to simultaneously search for and view project profiles from several collections containing over 1,200 of these profiles. The topics addressed by these profiles include the remediation of fractured bedrock sites, treatment of MtBE, and innovative field-scale demonstrations. Additional project profile collections and search criteria will be added in the future.

See: <http://clu-in.org/databases/search>

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#### **API Interactive LNAPL Guide**

This tool, developed by the American Petroleum Institute, is a comprehensive and easy-to-use electronic information system and screening utility. The Guide is designed to provide an overall approach for evaluating light non-aqueous phase liquid (e.g., petroleum hydrocarbon) at a site, assessing its potential risk, quantitatively defining mobility and recoverability, developing remedial strategies, and examining methods to enhance site closure opportunities. The Guide includes: primers covering all aspects of LNAPL, assessment tools, including API-LNAST Version 2.0, the "Charbeneau" spreadsheets for LNAPL recovery (August 2003), the API LNAPL Parameter Database,

LNAPL decision-making frameworks, videos, animated figures and an extensive reference list (Version 2.0, August 2004).

Download at <http://groundwater.api.org/lnaplguide> or request a CD from [kiharam@api.org](mailto:kiharam@api.org).

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### RTDF / NAPL Cleanup Alliance On-Line Course

On-Line Course! The Basics: Understanding the Behavior of Light Non-Aqueous Phase Liquids (LNAPLs) in the Subsurface is a new on-line training course offered by the Remediation Technologies Development Forum (RTDF)/Non-Aqueous Phase Liquid (NAPL) Cleanup Alliance. The RTDF is a public-private partnership that undertakes research, development, demonstration, and evaluation efforts focused on finding innovative solutions to high priority problems. The course provides a basic description of the behavior of LNAPLs (specifically, petroleum hydrocarbon liquids) in the subsurface. The training presents the technical concepts involved in LNAPL behavior, discusses the application of these concepts to real world situations, and explores how heterogeneity and other factors affect LNAPL behavior and complicate recovery.

To access the course, visit <http://www.rtdf.org/public/napl/> and click on the Training button.

For more information contact Kathy Yager, [yager.kathleen@epa.gov](mailto:yager.kathleen@epa.gov) or Ellen Rubin, [rubin.ellen@epa.gov](mailto:rubin.ellen@epa.gov).

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### Remediation Technology Project Demonstration Files

(Developed by EPA's OSRTI)

This web site (<http://clu-in.org/products/demos/>) provides information about remediation technology demonstration projects. New technologies or new applications of existing technologies that are under development are often tested at demonstration or field-scale, prior to use in full-scale cleanups. In the past, EPA has tracked field-scale demonstration projects and has published two editions of a report titled "Innovative Remediation Technologies: Field-Scale Demonstration Projects in North America," most recently in June 2000.

In addition, EPA publishes a monthly Technology Innovation News (TIN) survey (<http://clu-in.org/products/tins>) that includes limited information about technology demonstrations / feasibility studies, as well as about market / commercialization, cleanup, research, and general topics.

EPA has developed this web site to summarize timely information about selected field-scale demonstration projects. Projects address soil and groundwater cleanup technologies, completed and ongoing, which have been performed in the U.S. or Canada. This database includes projects that have been presented at a recent technical conference

(such as conferences sponsored by Battelle or the National Ground Water Association) or published in a technical journal. The database does not include projects that involve only site characterization technologies or computer modeling. EPA plans to update and expand this web site with additional demonstration projects, and with updated information about specific projects, as further information is obtained.

For more information please contact: John Quander, EPA, (703) 603-7198,  
[quander.john@epa.gov](mailto:quander.john@epa.gov)

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## RECENT DOCUMENTS, DATABASES, ETC.

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These entries are arranged alphabetically. Thanks to TechDirect, Tech Trends, NRMRL News, the ETV Program, DOE, DoD and others for posting their latest documents. And remember, many of these are available in paper format in the Region 9 library. Use your local library.....

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A Compendium of Chemical, Physical and Biological Methods for Assessing and Monitoring the Remediation of Contaminated Sediment Sites  
(EPA 600-R-04-108)  
(April 2004, 289 pages)  
<http://www.epa.gov/nerleerd/108Complete.pdf>

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A Decision-Making Framework for Cleanup of Sites Impacted with Light Non-Aqueous Phase Liquids (LNAPL)  
(EPA 542-R-04-011)  
(March 2005, 86 pages)  
<http://www.clu-in.org/download/techdrct/tdDecisionFramework.pdf> (1.3M)

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Case Study of the Triad Approach: Expedited Characterization of Petroleum Constituents and PCBs Using Test Kits and a Mobile Chromatography Laboratory at the Former Cos Cob Power Plant Site  
(EPA 542-R-04-008)  
(June 2004, 116 pages)  
[http://www.clu-in.org/download/techdrct/tdcoscob-casestudy\\_final.pdf](http://www.clu-in.org/download/techdrct/tdcoscob-casestudy_final.pdf) (8.8M)

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Cost and Performance Report for LNAPL Characterization and Remediation: Multi-Phase Extraction and Dual-Pump Recovery of LNAPL at the BP Amoco Refinery, Sugar Creek, MO

(EPA 542-R-05-016)

(March 2005, 47 pages)

<http://www.clu-in.org/download/techdrct/tdcpbpsugarcreek.pdf> (766K)

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Cost and Performance Report for LNAPL Characterization and Remediation: Partition Interwell Tracer Testing (PITT) and Rapid Optical Screening Tool (ROST) Characterization and Evaluation of the Feasibility of Surfactant Enhanced Aquifer Remediation (SEAR) at the Chevron Cincinnati Facility, Hooven, OH

(EPA 542-R-05-017)

(February 2005, 42 pages)

<http://www.clu-in.org/download/techdrct/tdcpchevron.pdf> (2.8M)

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Cost Effective Design of Pump and Treat Systems (Fact Sheet)

(EPA 542-R-05-008)

(April 2005, 38 pages)

[http://www.clu-in.org/download/techdrct/tdcost-effective\\_design.pdf](http://www.clu-in.org/download/techdrct/tdcost-effective_design.pdf) (419K)

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Effective Contracting Approaches for Operating Pump and Treat Systems (Fact Sheet)

(EPA 542-R-05-009)

(April 2005, 22 pages)

<http://www.clu-in.org/download/techdrct/tdcontracting.pdf> (288K)

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ETV Program: MOBILE SOURCES RETROFIT DEVICE VERIFIED

[http://www.epa.gov/etv/pdfs/vrvs/05\\_vr\\_CCFT.pdf](http://www.epa.gov/etv/pdfs/vrvs/05_vr_CCFT.pdf)

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ETV Program: RAPID POLYMERASE CHAIN REACTION TECHNOLOGIES VERIFIED

<http://www.epa.gov/etv/verifications/vcenter1-32.html>

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Evaluation of Phytoremediation for Management of Chlorinated Solvents in Soil and Groundwater

(EPA 542-R-05-001)

From the Remediation Technologies Development Forum (RTDF) Phytoremediation of Organics Action Team

[http://www.clu-in.org/download/techdrct/td\\_chlor\\_solv\\_management.pdf](http://www.clu-in.org/download/techdrct/td_chlor_solv_management.pdf) (543K)

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ITRC Geophysical Prove-Outs for Munitions Response Projects (UXO-3)  
(November 2004, 78 pages)  
<http://www.itrcweb.org/Documents/UXO-3.pdf>

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ITRC Overview of Groundwater Remediation Technologies for MTBE and TBA  
(MTBE-1)  
(February 2005, 131 pages)  
<http://www.itrcweb.org/Documents/MTBE-1.pdf>

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ITRC Permeable Reactive Barriers: Lessons Learned/New Directions (PRB-4)  
(February 2005, 202 pages)  
<http://www.itrcweb.org/Documents/PRB-4.pdf>

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ITRC Technical and Regulatory Guidance for In Situ Chemical Oxidation of  
Contaminated Soil and Groundwater  
(Second Edition, ISCO-2)  
(January 2005, 171 pages)  
<http://www.itrcweb.org/Documents/ISCO-2.pdf>

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NATO/CCMS Pilot Study: Prevention and Remediation Issues in Selected Industrial  
Sectors: Rehabilitation of Old Landfills, 2004 Annual Report  
(EPA 542-R-04-014)  
<http://www.clu-in.org/download/techdrct/tdnatoccms2004report.pdf> (284K)

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O&M Report Template for Ground Water Remedies (with Emphasis on Pump and Treat  
Systems) (Fact Sheet)  
(EPA 542-R-05-010)  
(April 2005, 58 pages)  
[http://www.clu-in.org/download/remed/hyopt/factsheets/o&m\\_report\\_template.pdf](http://www.clu-in.org/download/remed/hyopt/factsheets/o&m_report_template.pdf)  
(1.5M)

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Remediation Technology Evaluation at the Gilt Edge Mine, South Dakota  
(EPA 600-R-05-002)  
(November 2004, 48 pages)  
<http://www.epa.gov/ORD/NRMRL/pubs/600r05002/600r05002.pdf>

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Representative Sampling for Energetic Compounds at an Antitank Firing Range

(ERDC/CRREL TR-04-07)

(Fro the U.S. Army Corps of Engineers)

(April 2004, 66 pages)

[http://www.crrel.usace.army.mil/techpub/CRREL\\_Reports/reports/TR04-7.pdf](http://www.crrel.usace.army.mil/techpub/CRREL_Reports/reports/TR04-7.pdf)

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Technology News and Trends

(EPA 542-N-05-001)

(January 2005, 6 pages)

[http://www.clu-in.org/download/techdrct/td\\_tnandt0105.pdf](http://www.clu-in.org/download/techdrct/td_tnandt0105.pdf) (791K)

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## Serious Scientists Gather 'Round.....

(The editor asks: Will Level D PPE help you during this process?? Doubtful.....

Record 34.

TI: Neutralization of 4,6-Dinitro-o-cresol Waste Pesticide by Means of Detonative Combustion

AU: Bieganska, J

JN: Environmental Science and Technology

PD: 2005

VO: 39

NO: 4

PG: 1190-1196

PB: ACS AMERICAN CHEMICAL SOCIETY

IS: 0013-936X

PE: FEB 15

URL: <http://www.ingenta.com/isis/searching/Expand/ingenta?unc=1051285425>

Click on the URL to access the article or to link to other issues of the publication.

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Disclaimer

This quarterly newsletter publication is meant to be used for information only. It does not represent the opinion of the management of the regional or national offices of EPA, only that of the author. The accuracy of the information contained herein is not guaranteed, only desired. If corrections are necessary, please contact the author. Thanks again to all of my information resources, which include EPA's OSRTI (formerly TIO), ORD (including NRMRL News) and Region 1's CEIT.

Thanks for reading it! Comments and suggestions are appreciated. If you wish to be added to or deleted from this list, please send me an email. (gill.michael@epa.gov)

Newsletter archives can be found on the EPA intranet site.....<http://intranet.epa.gov/ospintra/scienceportal/htm/hstlnews.htm>  
A number of environmental technology web resources can be found here.....<http://www.epa.gov/region09/waste/techlinks/>